

- Demand is the relationship between price and the amount that consumers are willing and able to purchase at various prices in a given period of time. The law of demand states that consumers buy more at lower prices and less at higher prices, all other things equal.
- There is a difference between a change in demand and a change in quantity demanded. A change in quantity demanded can be caused only by a change in the price of the good. It is a movement along the demand curve. At a lower price, a greater quantity is demanded.
- A change in demand means that more or less is demanded at every price; it is caused by changes in preferences, incomes, expectations, population and the prices of complementary or substitute goods.
- The income effect, the substitution effect and the law of diminishing marginal utility can explain why a demand curve is downward sloping.
- The law of diminishing marginal utility states that as more of a good or service is consumed in a given period of time, the additional benefit or satisfaction declines.
- Supply is the relationship between price and the amount that producers are willing and able to sell at various prices in a given period of time. Producers are willing to sell more at higher prices and less at lower prices, all other things equal.
- There is a difference between a change in supply and a change in quantity supplied. A change in quantity supplied can be caused only by a change in the price of a good. It is a movement along the curve. A change in supply is a shift of the curve where more or less is supplied at every price. Changes in technology, production costs, taxes, subsidies and expectations will cause a shift in supply.
- In competitive markets, supply and demand constitute the sum of many individual decisions to sell and to buy. The interaction of supply and demand determines the price and quantity that will clear the market. The price where quantity supplied and quantity demanded are equal is called the equilibrium or market-clearing price.
- At a price higher than equilibrium, there is a surplus and pressure on sellers to lower their prices. At a price lower than equilibrium, there is a shortage and pressure on buyers to offer higher prices.
- An administered maximum price is called a price ceiling. A price ceiling below the equilibrium price causes shortages. A price ceiling set at or above the equilibrium price has no effect on the market.
- An administered minimum price is called a price floor. A price floor above the equilibrium price causes surpluses. A price floor set at or below the equilibrium price has no effect on the market.
- Market prices promote economic progress because at the equilibrium price there is both consumer and producer surplus. In other words, buyers and sellers are both better off at the equilibrium price.
- Consumer surplus is the difference between what consumers are willing to pay for a good or service and the price that consumers actually have to pay.
- Producer surplus is the difference between the price businesses would be willing to accept for the goods and services and the price they actually receive.
- Price elasticity of demand refers to how much the quantity demanded changes in relation to a given change in price. If the percentage change in quantity demanded is greater than the percentage change in price, the demand for the good is considered elas-

tic. If the percentage change in quantity demanded is less than the percentage change in price, the demand for the good is considered inelastic. If the percentage change in price is equal to the percentage change in quantity demanded, the demand for the good is considered unit elastic.

- Luxuries have a more-elastic demand than necessities because luxury goods use a greater percentage of income. High-priced goods have a more elastic demand than low-priced goods. Goods that are habit-forming tend to have an inelastic demand. Demand is more elastic in the long run than in the short run.

- Price elasticity of demand can be determined by using the total revenue and arc methods.
- Price elasticity of supply, also stated in percentage terms, refers to how much quantity supplied changes in relation to a given change in price. Supply is more elastic in the long run than in the short run.
- In a market economy, prices provide information, allocate resources and act as rationing devices. It is important to know how to illustrate a wide range of situations with supply and demand graphs.

Demand Curves, Movements Along Demand Curves and Shifts in Demand Curves

Part A

Figure 9.1 shows the market demand for a hypothetical product: Greebes. Study the data, and plot the demand for Greebes on the axes in Figure 9.2. Label the demand curve D, and answer the questions that follow. Write the correct answer in the answer blanks or underline the correct words in parentheses.



Figure 9.1

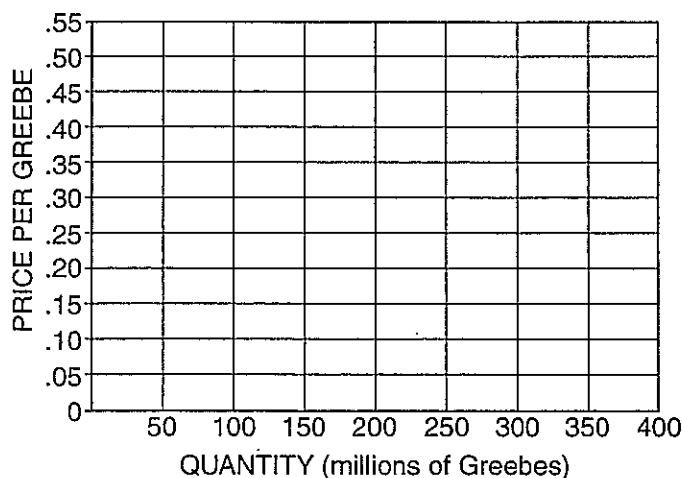
Demand for Greebes

Price (\$ per Greebe)	Quantity Demanded (millions of Greebes)
\$.10	350
.15	300
.20	250
.25	200
.30	150
.35	100
.40	50



Figure 9.2

Demand for Greebes



The data for demand curve D indicate that at a price of \$0.30 per Greebe, buyers would be willing to buy _____ million Greebes. Other things constant, if the price of Greebes increased to \$0.40 per Greebe, buyers would be willing to buy _____ million Greebes. Such a change would be a decrease in (*demand / quantity demanded*). Other things constant, if the price of Greebes decreased to \$0.20, buyers would be willing to buy _____ million Greebes. Such a change would be called an increase in (*demand / quantity demanded*).

Adapted from Phillip Saunders, *Introduction to Microeconomics: Student Workbook*, 18th ed. (Bloomington, Ind., 1998).
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Now, let's suppose there is a dramatic change in federal income-tax rates that affects the disposable income of Greebe buyers. This change in the *ceteris paribus* (all else being equal) conditions underlying the original demand for Greebes will result in a new set of data, shown in Figure 9.3. Study these new data, and add the new demand curve for Greebes to the axes in Figure 9.2. Label the new demand curve D_1 and answer the questions that follow.



Figure 9.3

New Demand for Greebes

Price (\$ per Greebe)	Quantity Demanded (millions of Greebes)
\$.05	300
.10	250
.15	200
.20	150
.25	100
.30	50

Comparing the new demand curve (D_1) with the original demand curve (D), we can say that the change in the demand for Greebes results in a shift of the demand curve to the (left / right).

Such a shift indicates that at each of the possible prices shown, buyers are now willing to buy a (smaller / larger) quantity; and at each of the possible quantities shown, buyers are willing to offer a (higher / lower) maximum price. The cause of this demand curve shift was a(n) (increase / decrease) in tax rates that (increased / decreased) the disposable income of Greebe buyers.

Now, let's suppose that there is a dramatic change in people's tastes and preferences for Greebes. This change in the *ceteris paribus* conditions underlying the original demand for Greebes will result in a new set of data, shown in Figure 9.4. Study these new data, and add the new demand curve for Greebes to the axes in Figure 9.2. Label the new demand curve D_2 and answer the questions that follow.



Figure 9.4

New Demand for Greebes

Price (\$ per Greebe)	Quantity Demanded (millions of Greebes)
\$.20	350
.25	300
.30	250
.35	200
.40	150
.45	100
.50	50

Comparing the new demand curve (D_2) with the original demand curve (D), we can say that the change in the demand for Greebes results in a shift of the demand curve to the (left / right).

5. a. Such a shift indicates that at each of the possible prices shown, buyers are now willing to buy a (*smaller / larger*) quantity; and at each of the possible quantities shown, buyers are willing to offer a (*lower / higher*) maximum price. The cause of this shift in the demand curve was a(n) (*increase / decrease*) in people's tastes and preferences for Greebes.

Part B

Now, to test your understanding, underline the answer you think is the one best alternative in each of the following multiple-choice questions.

1. Other things constant, which of the following would *not* cause a change in the demand (shift in the demand curve) for mopeds?
 - (A) A decrease in consumer incomes
 - (B) A decrease in the price of mopeds
 - (C) An increase in the price of bicycles
 - (D) An increase in people's tastes and preferences for mopeds
2. "Rising oil prices have caused a sharp decrease in the demand for oil." Speaking precisely, and using terms as they are defined by economists, choose the statement that best describes this quotation.
 - (A) The quotation is correct: An increase in price always causes a decrease in *demand*.
 - (B) The quotation is incorrect: An increase in price always causes an increase in *demand*, not a decrease in *demand*.
 - (C) The quotation is incorrect: An increase in price causes a decrease in the *quantity demanded*, not a decrease in *demand*.
 - (D) The quotation is incorrect: An increase in price causes an increase in the *quantity demanded*, not a decrease in *demand*.
3. "As the price of domestic automobiles has inched upward, customers have found foreign autos to be a better bargain. Consequently, domestic auto sales have been decreasing, and foreign auto sales have been increasing." Using only the information in this quotation and assuming everything else constant, which of the following best describes this statement?
 - (A) A shift in the demand curves for both domestic and foreign automobiles
 - (B) A movement along the demand curves for both foreign and domestic automobiles
 - (C) A movement along the demand curve for domestic autos, and a shift in the demand curve for foreign autos
 - (D) A shift in the demand curve for domestic autos, and a movement along the demand curve for foreign autos

4. You hear a fellow student say: "Economic markets are like a perpetual see-saw. If demand rises, the price rises; if price rises, then demand will fall. If demand falls, price will fall; if price falls, demand will rise and so on forever." Dispel your friend's obvious confusion in no more than one short paragraph below.

Part C

Once we have the demand curve, we can define the concept of *consumer surplus*. Consumer surplus is the value received from the purchase of a good in excess of the price paid for it, or stated differently, the difference between the amount a person is willing and able to pay and the actual price paid for each unit.

An approximation of consumer surplus can be shown graphically as the area below the demand curve above the price paid. Redraw the first demand curve (D) from Figure 9.2 on Figure 9.5.

If the price for all the quantities sold is established at \$0.30, shade the area above \$0.30 up to the demand curve. This is the area of consumer surplus.

Continue to use the demand curve from Figure 9.2, and assume that the price is established at \$0.30. There are buyers who will benefit because they are willing and able to pay higher prices than the established price (\$0.30). For example, 50 million Greebes are demanded at \$0.40, but since the market price is \$0.30, there is a gain to the buyers represented by this 50 million. The gain is a total of \$5 million ($\$0.10 \times 50 \text{ million} = \5 million). The buyers of the next 50 million Greebes (always consider the extra or marginal buyers since the buyers at the higher prices will also be willing to buy at the lower price) are willing to pay \$0.35, providing a gain of \$0.05 of the consumer surplus, for a total of \$2.5 million.

Reasons for Changes in Demand

Part A

Read the eight newspaper headlines in Figure 10.2, and use the table to record the impact, if any, of each event on the demand for beef. Use the first column to the right of the headline to show whether the event causes a change in demand. Use the next column to record whether the change is an increase or a decrease in demand. In the third column, decide whether the demand curve shifts left or right. Finally, write the letter for the new demand curve. Use Figure 10.1 to help you. **Always start at curve B**, and move only one curve at a time. One headline implies that the demand for beef does not change.



Figure 10.1

Beef Consumption in May

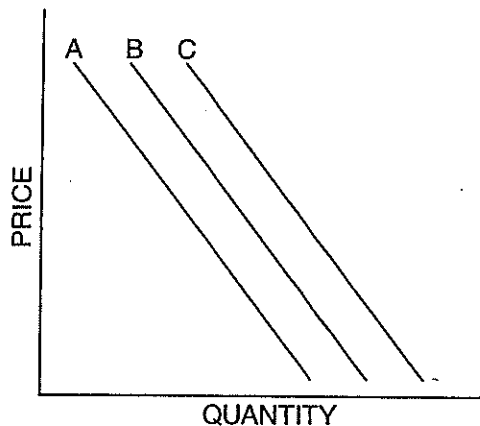


Figure 10.2

Headline	Demand Shift? (Y/N)	If Demand Shifts, Inc/Dec?	Curve Shifts Left/Right?	New Curve
1. Price of Beef to Rise in June				
2. Millions of Immigrants Swell U.S. Population				
3. Pork Prices Drop				
4. Surgeon General Warns That Eating Beef Is Hazardous to Health				
5. Beef Prices Fall; Consumers Buy More				
6. Real Income for U.S. Drops for Third Month				
7. Charcoal Shortage Threatens Memorial Day Cookouts				
8. Nationwide Fad: The Disco-Burger				

Based on an activity from *Master Curriculum Guide in Economics: Teaching Strategies for High School Economics Courses* (New York: National Council on Economic Education, 1985), p. 68.

Part B

Categorize each change in demand in Part A according to the reason why demand changed. A given demand curve assumes that consumer expectations, consumer tastes, the number of consumers in the market, the income of consumers, and the prices of substitutes and complements are unchanged. In the table below, place an X next to the reason that the event described in the headline caused a change in demand. One headline will have no answer because it is a change in quantity demanded.



Figure 10.3

↓ Reason	Headline Number →	1	2	3	4	5	6	7	8
A change in consumer expectations									
A change in consumer tastes									
A change in the number of consumers in the market									
A change in income									
A change in the price of a substitute good									
A change in the price of a complementary good									

Supply Curves, Movements Along Supply Curves and Shifts in Supply Curves

In this activity and those that follow, we will assume that the long-run supply curve of Greebes is typically upward sloping.

Part A

Study the data in Figure 12.1 and plot the supply of Greebes on the axes in Figure 12.2. Label the supply curve S and answer the questions that follow. Write the correct answer on the answer blank, or underline the correct answer in parentheses.

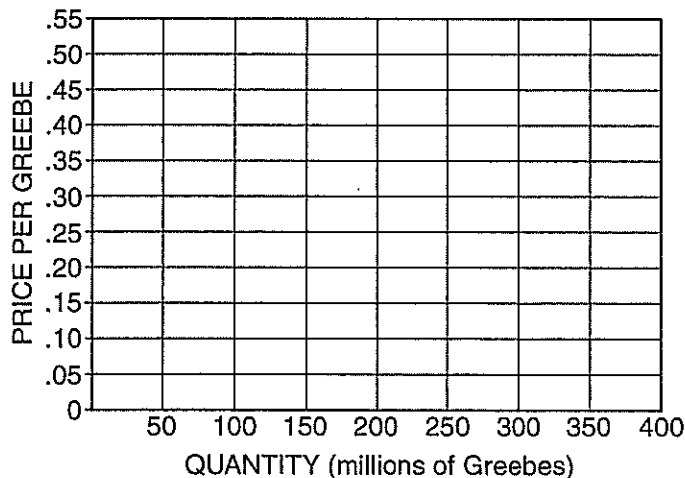


Figure 12.1
Supply of Greebes

Price (\$ per Greebe)	Quantity Supplied (millions of Greebes)
\$.15	100
.20	150
.25	200
.30	250
.35	300



Figure 12.2
Supply of Greebes



The data for supply curve S indicate that at a price of \$0.25 per Greebe, suppliers would be willing to offer _____ million Greebes. Other things constant, if the price of Greebes increased to \$0.30 per Greebe, suppliers would be willing to offer _____ million Greebes. Such a change would be an increase in (*supply / quantity supplied*).

Adapted from Phillip Saunders, *Introduction to Microeconomics: Student Workbook*, 18th ed. (Bloomington, Ind., 1998). Copyright © 1998 Phillip Saunders. All rights reserved.

Other things constant, if the price of Greebes decreased to \$0.20 per Greebe, suppliers would be willing to offer _____ million Greebes. Such a change would be called a decrease in (supply / quantity supplied).

Now, let's suppose that there is a dramatic change in the price of several of the raw materials used in making Greebes. This change in the *ceteris paribus* conditions underlying the original supply of Greebes will result in a new set of data, such as that shown in Figure 12.3. Study the data, and plot this supply of Greebes on the axes in Figure 12.2. Label the new supply curve S_1 and answer the questions that follow.



Figure 12.3
New Supply of Greebes

Price (\$ per Greebe)	Quantity Supplied (millions of Greebes)
\$.20	50
.25	100
.30	150
.35	200
.40	250

Comparing the new supply curve (S_1) with the original supply curve (S), we can say that a change in the supply of Greebes results in a shift of the supply curve to the (left / right). Such a shift indicates that at each of the possible prices shown, suppliers are now willing to offer a (smaller / larger) quantity; and at each of the possible quantities shown, suppliers are willing to accept a (higher / lower) minimum price. The cause of this supply curve shift was a(n) (increase / decrease) in prices of several of the raw materials used in making Greebes.

Now, let's suppose that there is a dramatic change in the price of Silopanna, a resource used in the production of Greebes. This change in the *ceteris paribus* conditions underlying the original supply of Greebes will result in a new set of data shown in Figure 12.4. Study the data, and plot this supply of Greebes on the axes in Figure 12.2. Label the new supply curve S_2 and answer the questions that follow.



Figure 12.4
New Supply of Greebes

Price (\$ per Greebe)	Quantity Supplied (millions of Greebes)
\$.10	150
.15	200
.20	250
.25	300
.30	350

Comparing the new supply curve (S_2) with the original supply curve (S), we can say that the change in the supply of Greebes results in a shift of the supply curve to the (left / right). Such a shift indicates that at each of the possible prices shown, suppliers are now willing to offer a (smaller / larger) quantity;

and at each of the possible quantities shown, suppliers are willing to accept a (*lower / higher*) minimum price. The cause of this supply curve shift is a(n) (*increase / decrease*) in the price of Silopanna, a resource used in the production of Greebes.

Part B

Now, to check your understanding, underline the answer you think is the one best alternative in each of the following multiple-choice questions.

1. Other things constant, which of the following would *not* cause a change in the long-run supply of beef?
(A) A decrease in the price of beef
(B) A decrease in the price of cattle feed
(C) An increase in the price of cattle feed
(D) An increase in the cost of transporting cattle to market
2. "Falling oil prices have caused a sharp decrease in the supply of oil." Speaking precisely, and using terms as they are defined by economists, choose the statement that best describes this quotation.
(A) The quotation is correct: A decrease in price always causes a decrease in *supply*.
(B) The quotation is incorrect: A decrease in price always causes an increase in *supply*, not a decrease in *supply*.
(C) The quotation is incorrect: A decrease in price causes an increase in the *quantity supplied*, not a decrease in *supply*.
(D) The quotation is incorrect: A decrease in price causes a decrease in the *quantity supplied*, not a decrease in *supply*.
3. You overhear a fellow student say: "Economic markets are like a slide: If supply increases, the price increases; if the price increases, then supply will fall. If supply falls, the price will rise; if the price increases, supply will increase and so on forever." Dispel your friend's obvious confusion (in no more than one short paragraph) below.

Part C

Once we have the supply curve, we can define the concept of *producer surplus*. Producer surplus is the amount a seller is paid minus the seller's cost. An approximation of producer surplus can be shown graphically as the area below the equilibrium price and above the supply curve.

4. Redraw the first supply curve (S) from Figure 12.2 on Figure 12.5. If the price for all the quantities sold is established at \$0.30, shade the area below \$0.30 down to the supply curve. This is the area of producer surplus.

Reasons for Changes in Supply

Part A

Read the eight newspaper headlines in Figure 13.2, and record the impact, if any, of each event on the supply of cars. Use the first column to the right of the headline to show whether the event will cause a change in supply. Use the next column to record whether the change is an increase or a decrease in supply. In the third column, decide whether the supply curve shifts left or right. Finally, write the letter for the new supply curve. Use Figure 13.1 to help you. **Always start at curve B**, and move only one curve at a time. Two headlines imply that the supply of cars does not change.



Figure 13.1

Supply of Foreign and Domestic Cars

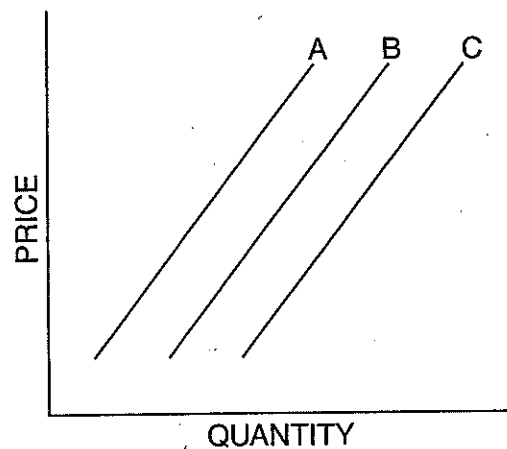


Figure 13.2

Headline	Supply Shift? (Y/N)	If Supply Shifts, Inc/Dec?	Curve Shifts Left/Right?	New Curve
1. Auto Workers' Union Agrees to Wage Cuts				
2. New Robot Technology Increases Efficiency				
3. Nationwide Auto Strike Began at Midnight				
4. New Import Quotas Reduce Foreign Car Imports				
5. Cost of Steel Rises				
6. Auto Producer Goes Bankrupt; Closes Operation				
7. Buyers Reject New Models				
8. National Income Rises 2%				

From *Master Curriculum Guide in Economics: Teaching Strategies for High School Economics Courses* (New York: National Council on Economic Education, 1985), p. 69.

Part B

Categorize each change in supply in Part A according to the reason why supply changed. In Figure 13.3, place an X next to the reason that the headline indicated a change in supply. In some cases, more than one headline could be matched to a reason. Two headlines do not indicate a shift in supply.



Figure 13.3

↓ Reason	Headline Number →							
	1	2	3	4	5	6	7	8
A change in costs of inputs to production process								
A change in technology								
A change in the number of producers in the market								
Government policies								

